

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:) Group Art Unit: Unassigned
Whitney et al.) Examiner: Unassigned
Parent Application No.: 09/047,862) "EXPRESS MAIL" Mailing Label Number EL476994170US
Parent Filed: March 25, 1998) Date of Deposit January 26, 2001
Filed: January 26, 2001) I hereby certify under 37 CFR 1.10 that this correspondence is
For: METHODS AND COMPOSITIONS) being deposited with the United States Postal Service as "Express
FOR SENSITIVE AND RAPID,) Mail Post Office to Addressee" with sufficient postage on the
FUNCTIONAL IDENTIFICATION OF) date indicated above and is addressed to the Commissioner for
GENOMIC POLYNUCLEOTIDES) Patents, Washington, D.C. 20231
AND USE FOR CELLULAR ASSAYS)
IN DRUG DISCOVERY)

Box Patent Application
Commissioner for Patents
Washington, D.C. 20231

PERMISSION TO USE SEQUENCE LISTING

Sir:

The above-identified patent application lacks a substitute paper copy of the Sequence Listing for inclusion into the Specification, as well as a computer readable form of the Sequence Listing. Applicants respectfully direct the attention of the Office to the following:

1. A complete paper copy of the Sequence Listing is to be inserted following the Abstract on page 114 and before the Drawings. Please insert the Sequence Listing beginning with page 1 and numbering consecutively thereafter. A paper copy of the Sequence Listing is included herewith, and is identical to the computer readable copy of the Sequence Listing filed in U.S. Patent Application Number 09/047,862, filed March 25, 1998.

In Re Application of:
Michael Whitney et al.
Parent Application No. 09/047,862
Parent Filing Date: March 25, 1998
Continuation Filing Date: January 26, 2001
Page 2

PATENT
Attorney Docket No.: AURO1120-5

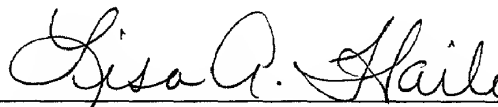
2. A computer-readable form in this application is identical with that filed in application serial number 09/047,862, which was filed March 25, 1998. Pursuant to 37 CFR §1.821(e), please use the Sequence Listing filed on October 18, 1999. It is understood that the Patent and Trademark Office will make the necessary change in application number and filing date for the computer readable form that will be used for application filed herewith.

I hereby state, as required by 37 C.F.R. § 1.821(g), that the enclosed submission includes no new matter. Applicants submit that the foregoing satisfies the requirements of Rule §1.821. If there are any questions regarding this response, the Office is invited to contact the undersigned.

No fee is deemed necessary in connection with the filing of this paper. However, if any fee is required, the Commissioner is hereby authorized to charge the amount of this fee, or credit any overpayments, to Deposit Account No. 50-1355.

Respectfully submitted,

Date: 1/26/01



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SEQUENCE LISTING

<110> Whitney, Mike
 Xanthopoulos, Kleanthis
 Nelson, David
 Negulescu, Paul
 Craig, Frank
 Foulkes, J. Gordon

<120> METHODS AND COMPOSITIONS FOR SENSITIVE
 AND RAPID, FUNCTIONAL IDENTIFICATION OF GENOMIC
 POLYNUCLEOTIDES AND USE FOR CELLULAR ASSAYS IN DRUG
 DISCOVERY

<130> 08366/026001

<140> 09/047,862

<141> 1998-03-25

<150> 09/021,974

<151> 1998-02-11

<150> 08/719,697

<151> 1996-09-26

<160> 15

<170> FastSEQ for Windows Version 4.0

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| gtgggttaca | tcgaactgga | tctcaacagc | ggttaagatcc | ttgagagttt | tcgccccgaa | 120 |
| gaacgttttc | caatgatgag | cactttttaa | gttctgctat | gtggcgcggt | attatcccgt | 180 |
| ggtgacgccg | ggcaagagca | actcggtcgc | cgcatacact | attctcagaa | tgacttggtt | 240 |
| gagtactcac | cagtcacaga | aaagcatctt | acggatggca | tgacagtaag | agaattatgc | 300 |
| agtgcctgcca | taaccatgag | tgataacact | gcggccaact | tacttctgac | aacgatcgga | 360 |
| ggaccgaagg | agctaaccgc | ttttttgcac | aacatggggg | atcatgtaac | tcgccttgat | 420 |
| cgttggggaac | cggagctgaa | tgaagccata | ccaaaacgac | agcgtgacac | cacgatgcct | 480 |
| gcagcaatgg | caacaacggt | gcgcaaaact | ttaactggcg | aactacttac | tctagcttcc | 540 |
| cggcaacaat | taatagactg | gatggaggcg | gataaagttg | caggaccact | tctgcgctcg | 600 |
| gcccttcccg | ctggctggtt | tattgctgat | aaatctggag | ccggtgagcg | tgggtctcgc | 660 |
| ggtatcattg | cagcactggg | gccagatggt | aagccctccc | gtatcgtagt | tatctacacg | 720 |
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| gtttttggtc | acccagaaac | gctggtgaaa | gtaaaagatg | ctgaagatca | gttgggtgca | 120 |
| cgagtggggt | acatcgaact | ggatctcaac | agcggtaaga | tccttgagag | ttttcgcccc | 180 |

09/047,862

| | | | | | | |
|------------|------------|------------|------------|------------|------------|-----|
| gaagaacggt | ttccaatgat | gagcactttt | aaagttctgc | tatgtggcgc | ggtattatcc | 240 |
| cgtgttgacg | cggggcaaga | gcaactcggg | cgccgcatac | actattotca | gaatgacttg | 300 |
| gttgagtact | caccagtcac | agaaaagcat | cttacggatg | gcatgacagt | aagagaatta | 360 |
| tgcagtgtcg | ccataaccat | gagtgataac | actgcggcca | acttacttct | gacaacgatc | 420 |
| ggaggaccga | aggagctaac | cgcttttttg | cacaacatgg | gggatcatgt | aactcgcctt | 480 |
| gatcggtggg | aaccggagct | gaatgaagcc | ataccaaacg | acgagcgtga | caccacgatg | 540 |
| cctgcagcaa | tggcaacaac | gttgcgcaaa | ctattaactg | gcgaactact | tactctagct | 600 |
| tcccggcaac | aattaataga | ctggatggag | gcggataaa | ttgcaggacc | acttctgcgc | 660 |
| tccggccctc | cggctggctg | gtttattgct | gataaatctg | gagccgggtg | gcgtgggtct | 720 |
| cgcggtatca | ttgcagcact | ggggccagat | ggtaagccct | cccgtatcgt | agttatctac | 780 |
| acgacgggga | gtcaggcaac | tatggatgaa | cgaaatagac | agatcgctga | gataggtgcc | 840 |
| tcactgatta | agcattgg | | | | | 858 |

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<212> DNA

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| gaaacgctgg | tgaaagtaaa | agatgctgaa | gatcagttgg | gtgcacgagt | gggttacatc | 120 |
| gaactggatc | tcaacagcgg | taagatcctt | gagagttttc | gccccgaaga | acgttttcca | 180 |
| atgatgagca | cttttaaggt | tctgctatgt | ggcgcggtat | tatcccgatg | tgacgcgggg | 240 |
| caagagcaac | tccgtcgcgc | catacactat | tctcagaatg | acttggttga | gtactcacca | 300 |
| gtcacagaaa | agcatcttac | ggatggcatg | acagtaagag | aattatgcag | tgctgccata | 360 |
| accatgagtg | ataacactgc | ggccaaactta | cttctgacaa | cgatcggagg | accgaaggag | 420 |
| ctaaccgctt | ttttgcacaa | catgggggat | catgtaactc | gccttgatca | ttgggaaccg | 480 |
| gagctgaatg | aagccatacc | aaacgacgag | cgtgacacca | cgatgcctgt | agcaatggca | 540 |
| acaacggttg | gcaaactatt | aactggcgaa | ctacttactc | tagcttcccg | gcaacaatta | 600 |
| atagactgga | tggaggcgga | taaagttgca | ggaccacttc | tgcgctcggc | ccttccggct | 660 |
| ggctgggtta | ttgctgataa | atctggagcc | ggtgagcgtg | ggtctcgcg | tatcattgca | 720 |
| gcaactatgg | atgaacgaaa | tagacagatc | gctgagatag | gtgcctcact | gattaagcat | 780 |
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| ggttacatcg | aactggatct | caacagcggg | aagatccttg | agagttttcg | ccccgaagaa | 120 |
| cgttttccaa | tgatgagcac | ttttaaggtt | ctgctatgtg | gcgcgggtatt | atcccggtatt | 180 |
| gacgcggggc | aagagcaact | cggtcgcgcg | atacactatt | ctcagaatga | cttggttgag | 240 |
| tactcaccag | tcacagaaaa | gcatcttacg | gatggcatga | cagtaagaga | attatgcagt | 300 |
| gctgccataa | ccatgagtga | taacactgcg | gccaacttac | ttctgacaac | gatcggagga | 360 |
| ccgaaggagc | taaccgcttt | tttgcacaac | atgggggatc | atgtaactcg | ccttgatcat | 420 |
| tgggaaccgg | agctgaatga | agccatacca | aacgacgagc | gtgacaccac | gatgcctgta | 480 |
| gcaatggcaa | caacgttgcg | caaactatta | actggcggaac | tacttactct | agcttcccg | 540 |
| caacaattaa | tagactggat | ggaggcggtg | aaagttgcag | gaccacttct | gcgctcgggc | 600 |
| cttccggctg | gctgggttat | tgttgataaa | tctggagccg | gtgagcgtgg | gtctcgcggt | 660 |
| atcattgcag | cactggggcc | agatgggtaag | ccctcccgta | tcgtagttat | ctacacgacg | 720 |
| gggagtcagg | caactatgga | tgaacgaaat | agacagatcg | ctgagatagg | tgccctcactg | 780 |
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097724 "012601

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| ttggatacag | gtacaaaccg | gacggtagcg | tatcggccgg | atgagcgttt | tgcttttgct | 120 |
| tcgacgatta | aggctttaac | tgtaggcgtg | cttttgcaac | agaaatcaat | agaagatctg | 180 |
| aaccagagaa | taacatatac | acgtgatgat | cttgtaaact | acaacccgat | tacggaaaag | 240 |
| cacgttgata | cgggaatgac | gctcaaagag | cttgccggatg | cttcgcttcg | atatagtac | 300 |
| aatgcggcac | agaatctcat | tcttaaacia | attggcggac | ctgaaagttt | gaaaaaggaa | 360 |
| ctgaggaaga | ttggtgatga | ggttacaaat | cccgaacgat | tcgaaccaga | gttaaatagaa | 420 |
| gtgaatccgg | gtgaaactca | ggataaccagt | acagcaagag | cacttggtcac | aagccttcga | 480 |
| gcctttgctc | ttgaagataa | acttccaagt | gaaaaacgcg | agctttttaat | cgattggatg | 540 |
| aaacgaaata | ccactggaga | cgccttaatc | cgtgccggag | cggcatcata | tggaaccggg | 600 |
| aatgacattg | ccatcatttg | gccgccaaaa | ggagatcctg | tcggtgtgcc | ggacgggttg | 660 |
| gaagtggctg | ataaaactgt | tcttgacagta | ttatccagca | gggataaaaa | ggacgccaaag | 720 |
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<212> PRT

<213> Escherichia coli

<400> 6

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| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| Leu | Gly | Ala | Arg | Val | Gly | Tyr | Ile | Glu | Leu | Asp | Leu | Asn | Ser | Gly | Lys | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| Ile | Leu | Glu | Ser | Phe | Arg | Pro | Glu | Glu | Arg | Phe | Pro | Met | Met | Ser | Thr | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| Phe | Lys | Val | Leu | Leu | Cys | Gly | Ala | Val | Leu | Ser | Arg | Val | Asp | Ala | Gly | |
| | 50 | | | | 55 | | | | | 60 | | | | | | |
| Gln | Glu | Gln | Leu | Gly | Arg | Arg | Ile | His | Tyr | Ser | Gln | Asn | Asp | Leu | Val | |
| 65 | | | | 70 | | | | | 75 | | | | | 80 | | |
| Glu | Tyr | Ser | Pro | Val | Thr | Glu | Lys | His | Leu | Thr | Asp | Gly | Met | Thr | Val | |
| | | | 85 | | | | | 90 | | | | | 95 | | | |
| Arg | Glu | Leu | Cys | Ser | Ala | Ala | Ile | Thr | Met | Ser | Asp | Asn | Thr | Ala | Ala | |
| | | | 100 | | | | 105 | | | | | | 110 | | | |
| Asn | Leu | Leu | Leu | Thr | Thr | Ile | Gly | Gly | Pro | Lys | Glu | Leu | Thr | Ala | Phe | |
| | | 115 | | | | 120 | | | | | | 125 | | | | |
| Leu | His | Asn | Met | Gly | Asp | His | Val | Thr | Arg | Leu | Asp | Arg | Trp | Glu | Pro | |
| | 130 | | | | 135 | | | | | | 140 | | | | | |
| Glu | Leu | Asn | Glu | Ala | Ile | Pro | Asn | Asp | Glu | Arg | Asp | Thr | Thr | Met | Pro | |
| 145 | | | | 150 | | | | | 155 | | | | | 160 | | |
| Ala | Ala | Met | Ala | Thr | Thr | Leu | Arg | Lys | Leu | Leu | Thr | Gly | Glu | Leu | Leu | |
| | | | 165 | | | | 170 | | | | | | 175 | | | |
| Thr | Leu | Ala | Ser | Arg | Gln | Gln | Leu | Ile | Asp | Trp | Met | Glu | Ala | Asp | Lys | |
| | | 180 | | | | | 185 | | | | | 190 | | | | |
| Val | Ala | Gly | Pro | Leu | Leu | Arg | Ser | Ala | Leu | Pro | Ala | Gly | Trp | Phe | Ile | |
| | 195 | | | | | 200 | | | | | | 205 | | | | |
| Ala | Asp | Lys | Ser | Gly | Ala | Gly | Glu | Arg | Gly | Ser | Arg | Gly | Ile | Ile | Ala | |
| | 210 | | | | 215 | | | | | | 220 | | | | | |
| Ala | Leu | Gly | Pro | Asp | Gly | Lys | Pro | Ser | Arg | Ile | Val | Val | Ile | Tyr | Thr | |
| 225 | | | | 230 | | | | | 235 | | | | | 240 | | |
| Thr | Gly | Ser | Gln | Ala | Thr | Met | Asp | Glu | Arg | Asn | Arg | Gln | Ile | Ala | Glu | |
| | | | 245 | | | | 250 | | | | | | 255 | | | |
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<212> PRT

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 35 40 45
 Asn Ser Gly Lys Ile Leu Glu Ser Phe Arg Pro Glu Glu Arg Phe Pro
 50 55 60
 Met Met Ser Thr Phe Lys Val Leu Leu Cys Gly Ala Val Leu Ser Arg
 65 70 75 80
 Val Asp Ala Gly Gln Glu Gln Leu Gly Arg Arg Ile His Tyr Ser Gln
 85 90 95
 Asn Asp Leu Val Glu Tyr Ser Pro Val Thr Glu Lys His Leu Thr Asp
 100 105 110
 Gly Met Thr Val Arg Glu Leu Cys Ser Ala Ala Ile Thr Met Ser Asp
 115 120 125
 Asn Thr Ala Ala Asn Leu Leu Thr Thr Ile Gly Gly Pro Lys Glu
 130 135 140
 Leu Thr Ala Phe Leu His Asn Met Gly Asp His Val Thr Arg Leu Asp
 145 150 155 160
 Arg Trp Glu Pro Glu Leu Asn Glu Ala Ile Pro Asn Asp Glu Arg Asp
 165 170 175
 Thr Thr Met Pro Ala Ala Met Ala Thr Thr Leu Arg Lys Leu Leu Thr
 180 185 190
 Gly Glu Leu Leu Thr Leu Ala Ser Arg Gln Gln Leu Ile Asp Trp Met
 195 200 205
 Glu Ala Asp Lys Val Ala Gly Pro Leu Leu Arg Ser Ala Leu Pro Ala
 210 215 220
 Gly Trp Phe Ile Ala Asp Lys Ser Gly Ala Gly Glu Arg Gly Ser Arg
 225 230 235 240
 Gly Ile Ile Ala Ala Leu Gly Pro Asp Gly Lys Pro Ser Arg Ile Val
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 Val Ile Tyr Thr Thr Gly Ser Gln Ala Thr Met Asp Glu Arg Asn Arg
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 Gln Ile Ala Glu Ile Gly Ala Ser Leu Ile Lys His Trp
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<212> PRT

<213> Escherichia coli

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 Ile Leu Glu Ser Phe Arg Pro Glu Glu Arg Phe Pro Met Met Ser Thr
 35 40 45
 Phe Lys Val Leu Leu Cys Gly Ala Val Leu Ser Arg Asp Asp Ala Gly
 50 55 60
 Gln Glu Gln Leu Gly Arg Ile His Tyr Ser Gln Asn Asp Leu Val
 65 70 75 80
 Glu Tyr Ser Pro Val Thr Glu Lys His Leu Thr Asp Gly Met Thr Val
 85 90 95
 Arg Glu Leu Cys Ser Ala Ala Ile Thr Met Ser Asp Asn Thr Ala Ala

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| | | |
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| 115 | 120 | 125 |
| Leu His Asn Met Gly Asp His Val Thr Arg Leu Asp His Trp Glu Pro | | |
| 130 | 135 | 140 |
| Glu Leu Asn Glu Ala Ile Pro Asn Asp Glu Arg Asp Thr Thr Met Pro | | |
| 145 | 150 | 155 |
| Val Ala Met Ala Thr Thr Leu Arg Lys Leu Leu Thr Gly Glu Leu Leu | | |
| 165 | 170 | 175 |
| Thr Leu Ala Ser Arg Gln Gln Leu Ile Asp Trp Met Glu Ala Asp Lys | | |
| 180 | 185 | 190 |
| Val Ala Gly Pro Leu Leu Arg Ser Ala Leu Pro Ala Gly Trp Phe Ile | | |
| 195 | 200 | 205 |
| Ala Asp Lys Ser Gly Ala Gly Glu Arg Gly Ser Arg Gly Ile Ile Ala | | |
| 210 | 215 | 220 |
| Ala Leu Gly Pro Asp Gly Lys Pro Ser Arg Ile Val Val Ile Tyr Thr | | |
| 225 | 230 | 235 |
| Thr Gly Ser Gln Ala Thr Met Asp Glu Arg Asn Arg Gln Ile Ala Glu | | |
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| Ile Gly Ala Ser Leu Ile Lys His Trp | | |
| 260 | 265 | |

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 <212> PRT
 <213> Escherichia coli

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| Leu Glu Ser Phe Arg Pro Glu Glu Arg Phe Pro Met Met Ser Thr Phe |
| 35 40 45 |
| Lys Val Leu Leu Cys Gly Ala Val Leu Ser Arg Ile Asp Ala Gly Gln |
| 50 55 60 |
| Glu Gln Leu Gly Arg Arg Ile His Tyr Ser Gln Asn Asp Leu Val Glu |
| 65 70 75 80 |
| Tyr Ser Pro Val Thr Glu Lys His Leu Thr Asp Gly Met Thr Val Arg |
| 85 90 95 |
| Glu Leu Cys Ser Ala Ala Ile Thr Met Ser Asp Asn Thr Ala Ala Asn |
| 100 105 110 |
| Leu Leu Leu Thr Thr Ile Gly Gly Pro Lys Glu Leu Thr Ala Phe Leu |
| 115 120 125 |
| His Asn Met Gly Asp His Val Thr Arg Leu Asp His Trp Glu Pro Glu |
| 130 135 140 |
| Leu Asn Glu Ala Ile Pro Asn Asp Glu Arg Asp Thr Thr Met Pro Val |
| 145 150 155 160 |
| Ala Met Ala Thr Thr Leu Arg Lys Leu Leu Thr Gly Glu Leu Leu Thr |
| 165 170 175 |
| Leu Ala Ser Arg Gln Gln Leu Ile Asp Trp Met Glu Ala Asp Lys Val |
| 180 185 190 |
| Ala Gly Pro Leu Leu Arg Ser Ala Leu Pro Ala Gly Trp Phe Ile Ala |
| 195 200 205 |
| Asp Lys Ser Gly Ala Gly Glu Arg Gly Ser Arg Gly Ile Ile Ala Ala |
| 210 215 220 |
| Leu Gly Pro Asp Gly Lys Pro Ser Arg Ile Val Val Ile Tyr Thr Thr |
| 225 230 235 240 |
| Gly Ser Gln Ala Thr Met Asp Glu Arg Asn Arg Gln Ile Ala Glu Ile |
| 245 250 255 |

097244-04901

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<212> PRT

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35 40 45
Gly Val Leu Leu Gln Gln Lys Ser Ile Glu Asp Leu Asn Gln Arg Ile
50 55 60
Thr Tyr Thr Arg Asp Asp Leu Val Asn Tyr Asn Pro Ile Thr Glu Lys
65 70 75 80
His Val Asp Thr Gly Met Thr Leu Lys Glu Leu Ala Asp Ala Ser Leu
85 90 95
Arg Tyr Ser Asp Asn Ala Ala Gln Asn Leu Ile Leu Lys Gln Ile Gly
100 105 110
Gly Pro Glu Ser Leu Lys Lys Glu Leu Arg Lys Ile Gly Asp Glu Val
115 120 125
Thr Asn Pro Glu Arg Phe Glu Pro Glu Leu Asn Glu Val Asn Pro Gly
130 135 140
Glu Thr Gln Asp Thr Ser Thr Ala Arg Ala Leu Val Thr Ser Leu Arg
145 150 155 160
Ala Phe Ala Leu Glu Asp Lys Leu Pro Ser Glu Lys Arg Glu Leu Leu
165 170 175
Ile Asp Trp Met Lys Arg Asn Thr Thr Gly Asp Ala Leu Ile Arg Ala
180 185 190
Gly Ala Ala Ser Tyr Gly Thr Arg Asn Asp Ile Ala Ile Ile Trp Pro
195 200 205
Pro Lys Gly Asp Pro Val Gly Val Pro Asp Gly Trp Glu Val Ala Asp
210 215 220
Lys Thr Val Leu Ala Val Leu Ser Ser Arg Asp Lys Lys Asp Ala Lys
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<213> Artificial Sequence

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<212> DNA

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